Three New Species of *Schefflera* (Araliaceae) from the Espinhaço Range in Minas Gerais, Brazil

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ABSTRACT. Three new species of *Schefflera* from the Espinhaço Range in Minas Gerais, Brazil, are described and illustrated: *Schefflera botumirimensis* Fiaschi & Pirani resembles *S. glaziovii* (Taubert) Frodin & Fiaschi, but differs by its elongated inflorescence and leaflet morphology. *Schefflera fruticosa* Fiaschi & Pirani appears to be related to *S. vinosa* (Chamisso & Schlechtendal) Frodin & Fiaschi, but can be distinguished by its reduced inflorescence with up to five partial inflorescences at each primary branch. *Schefflera villosissima* Fiaschi & Pirani is similar to *S. macrocarpa* (Chamisso & Schlechtendal) Frodin, but differs by its more dense indumentum and the flowers grouped in heads.

RESUMO. Três espécies novas de *Schefflera* da Cadeia do Espinhaço em Minas Gerais, Brasil, são descritas e ilustradas: *Schefflera botumirimensis* Fiaschi & Pirani assemelha-se a *S. glaziovii* (Taubert) Frodin & Fiaschi, no entanto difere desta pela inflorescência alongada e a morfologia dos folíolos. *Schefflera fruticosa* Fiaschi & Pirani parece relacionada a *S. vinosa* (Chamisso & Schlechtendal) Frodin & Fiaschi, mas pode ser distinta pelas inflorescências reduzidas com até 5 inflorescências parciais por ramo primário. *Schefflera villosissima* Fiaschi & Pirani assemelha-se a *S. macrocarpa* (Chamisso & Schlechtendal) Frodin, diferindo pelo indumento mais denso e as flores agrupadas em capítulos.

Key words: Araliaceae, Brazil, Espinhaço Range, Minas Gerais, *Schefflera*.

The genus *Schefflera* J. R. Forster & G. Forster includes ca. 900 species and is thus the largest in the family Araliaceae (Frodin, 1995; Frodin & Govaerts, 2003). It is widely distributed in tropical areas, where it is best represented at high altitudes in southeastern Asia, New Caledonia, and the mountain ranges of the Andes.

The current delimitation of pantropical *Schefflera* has been shown to be highly unnatural and to include four to five independent lineages; one of these independent lineages comprises the Neotropical species (Wen et al., 2001; Plunkett et al., 2004). In Brazil, the genus is represented by ca. 50 species, most of which are restricted to small areas in the Guayana Shield (near the border with Venezuela), the Atlantic Coastal forests of Rio de Janeiro and Espírito Santo states, western Amazonia, and the Central Plateau, with the highest percentage of locally endemic species occurring along the Espinhaço Range in Minas Gerais.

During a taxonomic study of *Schefflera* in southeastern Brazil (Fiaschi, 2002), several new species have been recognized. As with most Brazilian species of *Schefflera* that were previously included in *Didymopanax* Decaisne & Planchon (essentially distinct by its bicarpellate ovary), the new species described here belong to this group.

These species are from the Espinhaço Range in Minas Gerais, being "endemic to only one mountain," a distributional pattern described by Giulietti and Pirani (1988) that is characteristic of many species of the *campos rupestres* vegetation. Descriptions of this special type of vegetation are found in Harley (1995) and Giulietti et al. (1997).

Schefflera botumirimensis Fiaschi & Pirani, sp. nov. TYPE: Brazil. Minas Gerais: Botumirim, contrafortes orientais da Serra da Canastra, trilha do Cruzeiro, 1280 m, 29 Sep. 1997 (fr), *R. Mello Silva, M. L. Kawasaki & A. Rapini 1475* (holotype, SPF; isotypes, BHCB, K, MO, NY). Figure 1.

Species nova a *Schefflera glaziovii* inflorescentia elongata, pedicellis fructuum longioribus (1–2 cm longo), basibus foliolorum rotundatis differt.

Shrubs up to ca. 2 m tall; branchlets 4–8 mm diam., grayish-sericeous or glabrescent, nigrescent when dried. Leaves crowded at the terminal portion of branchlets; stipules 4–6 mm long, apex generally bifid; petiole 13–23 cm long, glabrescent; leaflets 7 to 11, deflexed, conduplicate, papery, glabrous on adaxial surface, grayish-sericeous or glabrescent on abaxial surface; venation brochidodromous; main vein prominent on both surfaces, more so

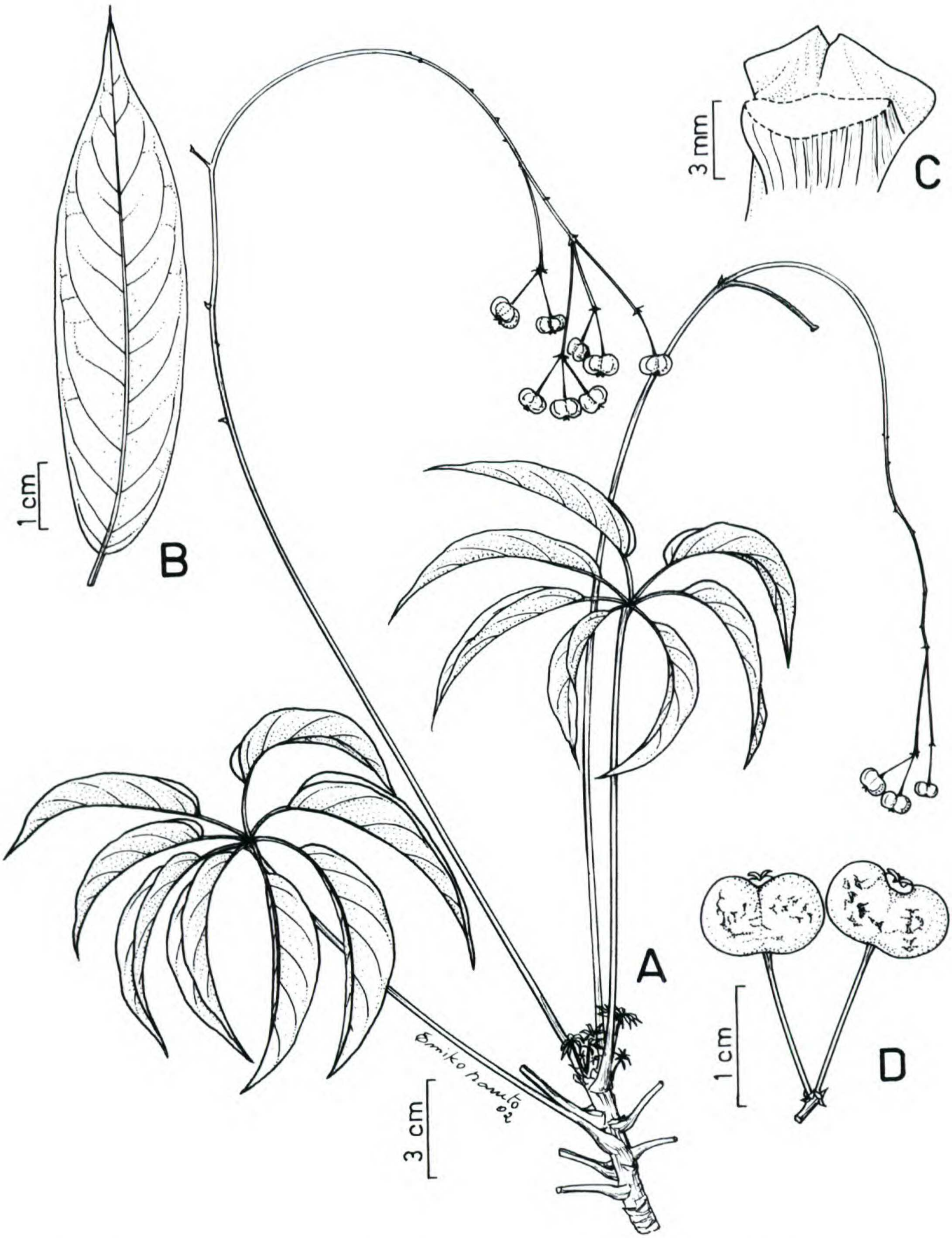

Figure 1. *Schefflera botumirimensis* Fiaschi & Pirani. —A. Fruiting branch. —B. Median leaflet. —C. Adaxial view of the stipule. —D. Fruits. Drawings based on the type.

abaxially; secondary veins 7 to 9, impressed on both surfaces; intersecondary veins absent. Median leaflet: petiolule 1.5–2 cm long, canaliculate on adaxial surface, glabrescent; blade 5.8–8.6 × 1–2.7 cm, narrowly elliptic or oblong to ovate, apex caudate, base rounded (subcordate), margin entire, slightly revolute; basal leaflets with petiolule up to ca. 1 cm long, these blades 5–7 × 1–1.8 cm, sim-

ilar in shape to the median ones, symmetric or slightly asymmetric. Inflorescence terminal, glabrescent; peduncle up to ca. 3.5 cm long, rachis absent or up to ca. 8.5 cm long; primary branches 3 or 4, 21.5–34 cm long; secondary branches 7 to 9, 4–15 cm long; tertiary branches up to ca. 3.5 cm long; ultimate inflorescence units umbellate; floral bracts ca. 0.5 mm long. Flowers not seen. Drupe laterally compressed, 4.5–7 × 8.5–10 mm; pedicel 1–2 cm long; styles 2(3); pyrenes 2(3), 6–7.5 × 4.5–5.0 mm, indurate.

Schefflera botumirimensis is probably endemic to the Serra da Canastra and appears to be restricted to an area northwest of the municipality of Botumirim in the northern portion of the Espinhaço Range. Its restricted geographic range and the knowledge of just one collection from an unprotected area suggests that this species should be considered critically endangered (IUCN, 2001).

Schefflera botumirimensis resembles *S. glaziovii*, differing clearly by its elongated inflorescence and pedicels (1–2 cm long in fruit) and by the morphology of the leaflets, which are characterized by rounded bases, in sharp contrast with those of *S. glaziovii*, which have cuneate to obtuse bases.

Schefflera botumirimensis, along with *S. gardneri* and *S. glaziovii*, comprises a group of shrubby species characteristic of rocky outcrops of *campos rupestres* vegetation along the Espinhaço Range in the Brazilian state of Minas Gerais. This species group is characterized by the presence of leaflets with the blade slightly to strongly conduplicate and the apex acute to caudate or cuspidate.

Schefflera fruticosa Fiaschi & Pirani, sp. nov. TYPE: Brazil. Minas Gerais: Jaboticatubas, Parque Nacional da Serra do Cipó, morro do lado esquerdo da Cachoeira da Farofa, 15 June 2000 (fl, fr), *P. Fiaschi & F. N. Costa 286* (holotype, SPF; isotypes, BHCB, K, MBM, MO, NY, RB, SP). Figure 2.

Species nova a *Schefflera vinosa* inflorescentia brevi pauciflora (usque ad 5 ramulis per ramum primarium), foliolis medianis angustioribus (3.5–11 cm longis, 0.7–2.7 cm latis).

Shrubs 1–1.5 m tall; branchlets 3–5 mm diam., densely ochraceous-yellowish to grayish-sericeous to glabrescent; internodes up to ca. 2.5 cm long. Stipules reduced (ca. 3 mm long), apex entire or slightly bifid; petiole 3–13 cm long, ascendent, glabrescent, slightly striate longitudinally; leaflets (1)3 to 8, ascendent, plane, papery, glabrous on adaxial surface, ochraceous-yellowish to grayish-sericeous to glabrescent on abaxial surface; venation brochidodromous; main vein prominent on both surfaces, more so abaxially; secondary veins 6 to 9, prominent only abaxially; intersecondary veins absent. Median leaflet with petiolule 1–2.5 cm long, subwinged; blade 3.5–11 × 0.7–2.7 cm, narrowly oblanceolate, apex acute to rounded (truncate), mucronate, base narrowly cuneate to long-attenuate, margin entire, revolute; basal leaflets with petiolule up to ca. 0.6 cm long, blade 2.2–7 × 0.5–1.3 cm, gradually shorter than the median, symmetric to clearly asymmetric. Inflorescence terminal, erect, included within the foliage, ochraceous-yellowish to grayish-sericeous to glabrescent; peduncle up to ca. 0.5 cm long, rachis absent or up to ca. 5.5 cm long; primary branches (2)3 to 7, all but 1(2) of which are terminal, 2.5–8.5(13) cm long; secondary branches 1 to 5, 0.3–5.5 cm long, bracts 2–3 mm long; ultimate inflorescence units umbellate, with 7 to 18 flowers; floral bracts ca. 1 mm long, triangular. Pedicel 0.4–1 cm long; calyx ochraceous to yellowish-sericeous, lacinia evident; petal color cream-greenish, ca. 3 × 1.5 mm, elliptic, sericeous abaxially, glabrous adaxially; filaments ca. 0.7 mm long, anthers 1.8–2 × 0.8–1 mm, oblong and apiculate; styles 2, free, ascending in flower, reflexed in fruit. Drupe laterally compressed, 6–7.2 × 10–11.5 mm, glabrous, green when immature, turning dark purple at maturity; pedicel 5–8 mm long; pyrenes (1)2(3), 5.5–8 × 4.5–6 mm, indurate.

Schefflera fruticosa is presumably endemic to the Serra do Cipó, in the southern Espinhaço Range, where it is found between rock outcrops in shallow soil fields. It has been collected with flowers in February and June and with fruits in June and September.

Several features, both vegetative and reproductive, can be used to distinguish *Schefflera fruticosa* from other members of the genus in eastern Brazil, the most remarkable being the reduced and few-flowered inflorescences and the very narrow, ascendent leaflets. The inflorescences of *Schefflera fruticosa* bear both bisexual and male flowers, the first ones essentially on the distal part of the branches and the others more proximally, thus characterizing an andromonoecious sexual system.

The specific epithet refers to this plant's shrubby habit, a common feature among woody species endemic to the *campos rupestres* of the Espinhaço Range.

Paratypes. BRAZIL. **Minas Gerais:** Jaboticatubas, Alto da Serra da Lagoa Dourada, *N. Roque et al. 104* (CTES, F, G, R, SPF, UEC); morro do lado esq. da Cachoeira da Farofa, *P. Fiaschi et al. 68* (SPF, U); entrada do Canyon das Bandeirinhas, *P. Fiaschi et al. 61* (SPF); Santana do Riacho, estrada vicinal da Rodovia MG 010, trilha

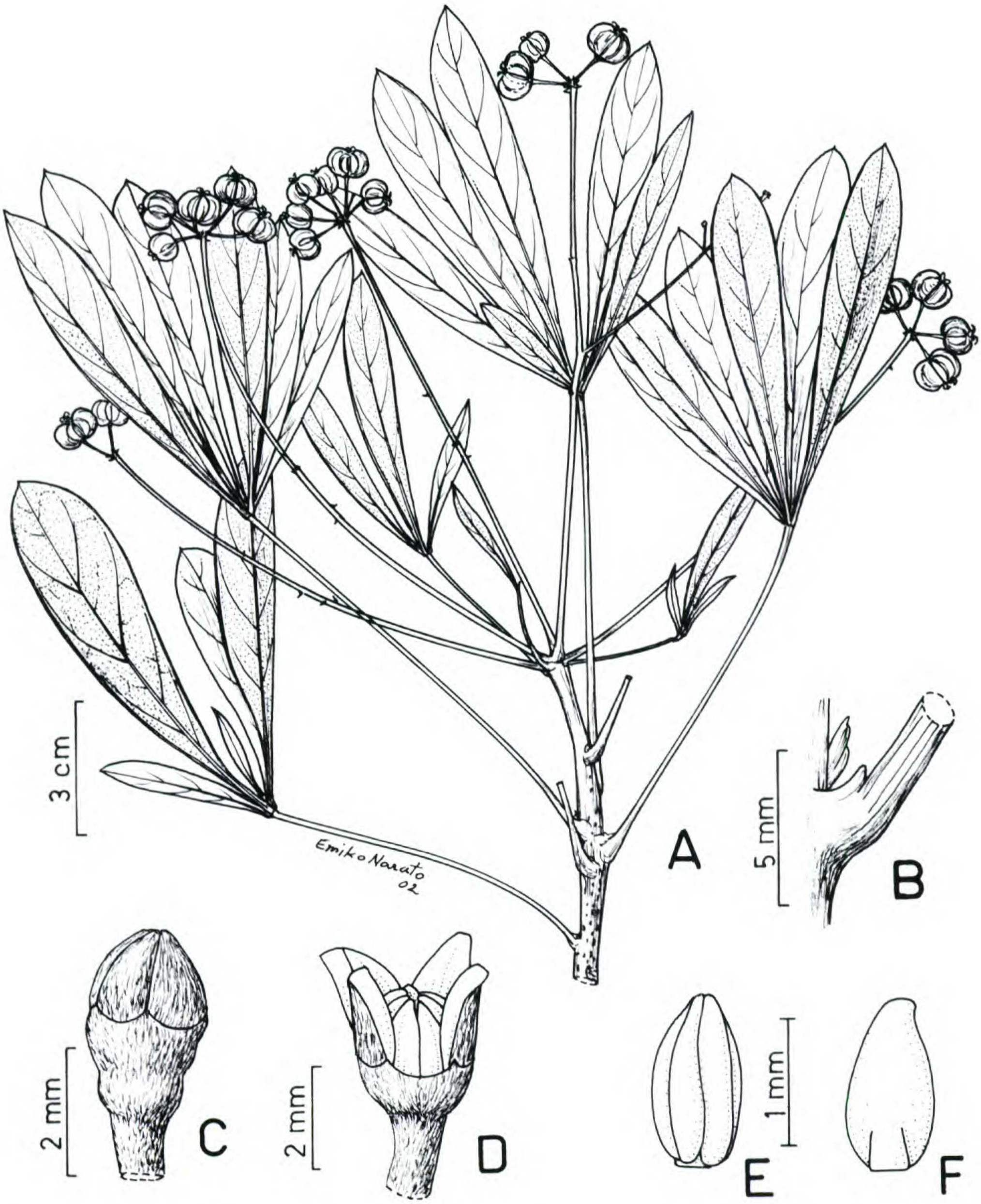

Figure 2. *Schefflera fruticosa* Fiaschi & Pirani. —A. Fruiting branch. —B. Lateral view of stipule. —C. Floral bud. —D. Flower (one petal removed). —E. Adaxial view of the stamen. —F. Abaxial view of the stamen. Drawings based on the type (A, C–F) and *N. Roque et al. 104* (B).

para Cachoeira do Gavião, *P. Fiaschi & F. N. Costa 348* (HUEFS, K, SPF, UB).

Schefflera villosissima Fiaschi & Pirani, sp. nov. TYPE: Brazil. Minas Gerais: Serra do Espinhaço, at Lapinha, ca. 19 km N of Serro, on road (MG 2) to Diamantina, ca. 1200 m, 24 Feb. 1968 (fl), *H. S. Irwin, H. Maxwell & D. C. Wasshausen 20809* (holotype, K; isotypes, NY, UB, photo SPF). Figure 3.

Species nova a *Schefflera macrocarpa* indumento denso villoso, floribus in capitulis congestis differt.

Shrubs to 4 m tall; branchlets densely ochraceous to yellowish-villous. Leaves crowded at the terminal portion of the branchlets; stipules ca. 1 cm long, entire; petiole 20–23 cm long, cylindrical, densely ochraceous to yellowish to grayish-villous; leaflets 7 to 9, horizontal, plane, leathery, the adaxial surface with trichomes restricted to the prox-

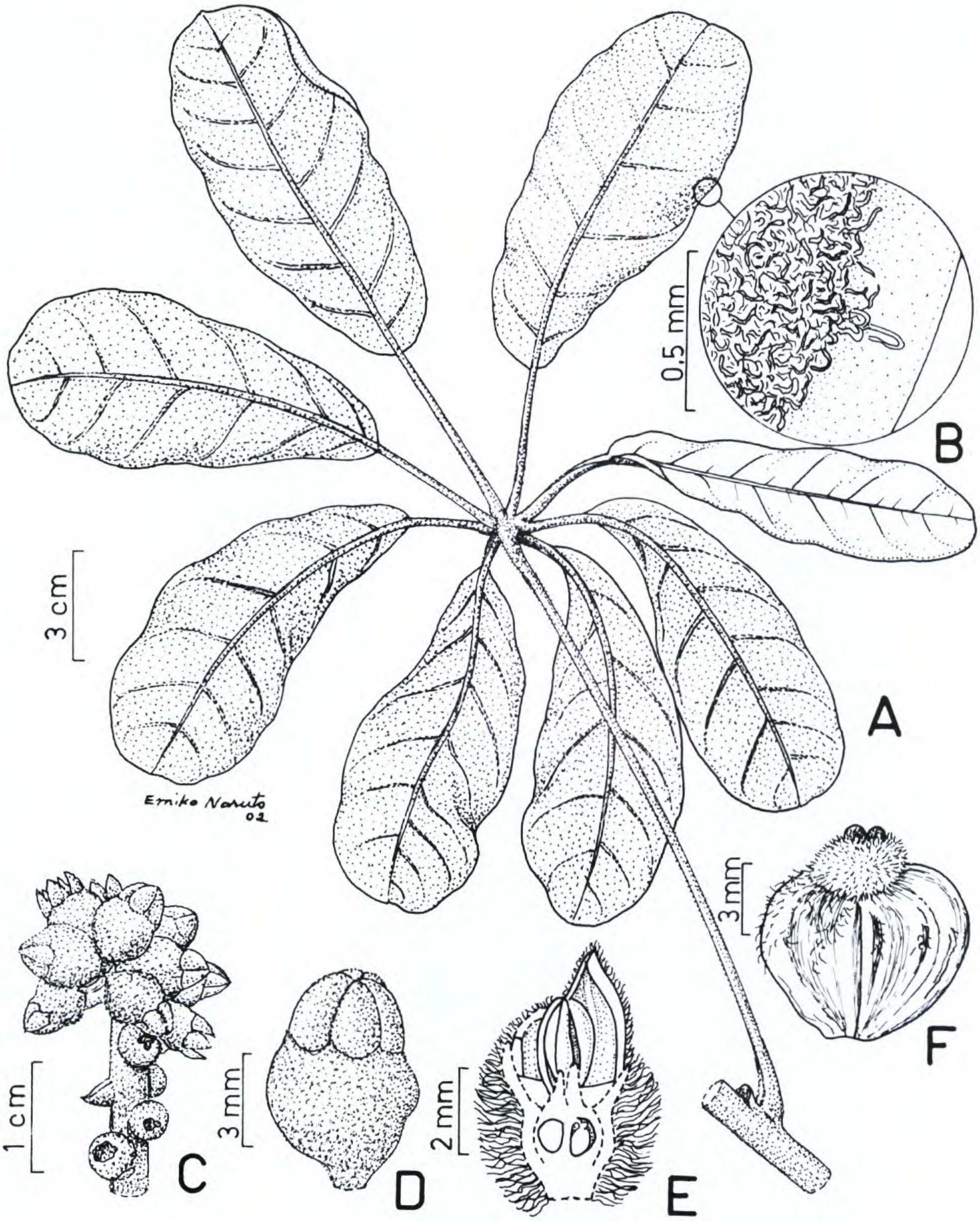

Figure 3. *Schefflera villosissima* Fiaschi & Pirani. —A. Leaf. —B. Detail of the indument on the abaxial surface of leaflet. —C. Ultimate inflorescence unit. —D. Floral bud. —E. Longitudinal section of the floral bud. —F. Fruit. Drawings based on *R. Mello-Silva et al. CFCR 7870* (A, B), *H. Irwin et al. 20809* (C–E), and *W. R. Anderson 8736* (F).

imal portion of the main vein, abaxial surface densely ochraceous to yellowish-villous; venation brochidodromous; main vein prominent on both surfaces, more so abaxially; secondary veins 10 to 12, prominent abaxially, but impressed adaxially; intersecondary veins absent. Median leaflet with petiolule 3–5.5 cm long, laterally compressed, densely villous; blade 12–12.5 × 7–8 cm, elliptic or oblong, apex retuse to rounded, base obtuse to rounded, margin entire, revolute; basal leaflets with petiolule up to 0.5–1.5 cm long, blade 8.5–9 × 2.5–4 cm, similar to median ones. Inflorescence terminal, erect, densely ochraceous to yellowish-villous; peduncle ca. 1 cm long, rachis reduced; primary branches 6, 15–43 cm long, secondary branches 25 to 41, 2.5–7 cm long, with only one terminal to 10 racemosely arranged capitulate ultimate inflorescence units; floral bracts ca. 1.5 mm

long, triangular. Flowers sessile, densely ochraceous to yellowish-villous; calyx villous, lacinia evident; petals 2.5–3.7 × 1.3–2.1 mm, ovate or elliptic, apex acute, glabrous adaxially, tomentose abaxially; filaments 0.3 mm long; anthers 2.2–2.4 × 1.1–1.2 mm wide, oblong, apiculate; styles 2(3), free, ascending in flower, reflexed in fruit. Drupe laterally compressed, 6–7 × 9–11 mm, persistently villous at apex, with two pyrenes.

The new species is endemic to mountains of the Diamantina Plateau in the Espinhaço Range. It has been collected with flowers in August and February, and with fruits in January, February, April, and July.

As commonly found in most Brazilian *Schefflera*, the inflorescences of *S. villosissima* have both bisexual and male flowers, being thus characterized as having an andromonoecious sexual system.

Schefflera villosissima closely resembles *S. macrocarpa*, differing from it by having flowers grouped in heads (vs. ultimate inflorescence units umbellate) and the dense villous indumentum that covers the undersurface of leaflets and petiolules, as well as the flowers and inflorescences (vs. indumentum not so dense).

Although one collection (*Martius s.n.*, M) bears the name *Didymopanax macrocarpum* var. *villosissimum* [ined.], written in E. Marchal's handwriting, this name was never published. We have decided to retain the varietal epithet since it fits well with the material described here. As the diagnostic features cited above are well marked in populations from the Diamantina Plateau, we thought it better to recognize *Schefflera villosissima* as a distinct species rather than as a variety of *S. macrocarpa*.

Paratypes. BRAZIL. **Minas Gerais:** without precise locality, *C. F. P. Martius s.n.* (M); Couto de Magalhães de Minas, 5 km by road NE of Rio Manso & Couto de Magalhães, 960–1000 m, *W. R. Anderson 8736* (UB); Diamantina, Serra do Mourão, *G. Hatschbach 40869* (MBM); diamond district, *G. Gardner 4706* (BM); Felisberto Caldeira [= São Gonçalo do Rio Preto], Curtidor, *G. Hatschbach & L. Z. Ahumada 31681* (MBM); Rio Vermelho, Pedra Menina, Serra do Ambrósio, Espigão do Meio, *R. Mello-Silva et al. CFCR 7870* (SPF).

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Validation of a New Species of *Schwartzia* (Marcgraviaceae) and Synopsis of the Genus for Ecuador

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ABSTRACT. A new species of *Schwartzia*, *S. pterosara*, is validated. This species is known only from the vicinity of Baeza, Napo Province, Ecuador. A key to and a synopsis of the Ecuadorean species of *Schwartzia* are provided. Four *Schwartzia* species are presently recognized from Ecuador, with *S. chocoensis* and *S. diaz-piedrahitae* as first records for the country.

RESUMEN. Se valida una nueva especie de *Schwartzia*, *S. pterosara*. La nueva especie se conoce únicamente de los alrededores de Baeza en la Provincia de Napo (Ecuador). Se presentan una clave y una sinopsis para las especies ecuatorianas de *Schwartzia*. Así, *Schwartzia* está representado en Ecuador por cuatro especies, siendo registradas por primera vez para el país *S. chocoensis* y *S. diaz-piedrahitae*.

Key words: Ecuador, Marcgraviaceae, *Norantea*, *Schwartzia*.

Schwartzia Vellozo is a small genus of the Neotropical family Marcgraviaceae comprising 17 species distributed in wet lowland forests or montane rain and cloud forests from Costa Rica to southern Brazil, and also in the Lesser Antilles. This genus is easily distinguished from *Norantea* Aublet and other related genera [*Marcgraviastrum* (Wittmack ex Szyszylowicz) de Roon & S. Dressler and *Sarcopera* Bedell, which constitute the Norantea complex] by its relatively short raceme with flowers that are borne on long pedicels, and by the stalked cymbiform, cyathiform or helmet-shaped nectaries that are attached at or below the middle of the pedicel, or only rarely at the base of the pedicel, e.g., *S. diaz-piedrahitae* Giraldo-Cañas. The flowers in *Schwartzia* are larger than those found in *Norantea*. A key to the four genera of the Norantea complex was provided in Giraldo-Cañas (2003).

A thorough taxonomic treatment of the Norantea complex was the unpublished Ph.D. thesis of Bedell (1985). Additional research on the group has been carried out by de Roon and Dressler (1997) and Giraldo-Cañas (2001a, 2001b, 2001c, 2002a, 2002b, 2002c, 2003). *Schwartzia pterosara*, a new species proposed by de Roon and Bedell (Bedell, 1985) is validated here. The description, Latin diagnosis, and taxonomic history are based on Bedell (1985), with some changes made herein.

Schwartzia pterosara de Roon & Bedell ex Giraldo-Cañas, sp. nov. TYPE: Ecuador. Napo: along rd. betw. Quito & Baeza, 3 mi. W of Baeza, 0°25′S, 77°51′W, 2000 m, 2 Oct. 1980, *T. B. Croat 50284* (holotype, MO; isotypes, GH, MARY not seen). Figure 1.

Frutex. Folia obovata (5–)8–12.5 cm longa et (2.2–)3.8–6.2 cm lata basibus acutis apicibus obtusis; glandes hypophyllae 50–68 in quoque folio in aequalibus seriebus 1–11 mm distantibus ex marginibus foliorum. Axes inflorescentiarum 10–17.2 cm longi; flores 18–42; pedicelli 3.5–5.5 cm longi et 2–3 mm lati basin versus 4–5 mm lati apicem versus; nectaria cyathiformia, 0.6–1.0 cm longa, 0.8–1.6 cm ex basibus pedicellorum inserta; stamina 12; ovarium 5-loculatum; stigma mammiforme.

Sprawling epiphytic shrubs; branches woody and subterete with glabrous, grayish yellow bark and longitudinal lenticels. Leaves petiolate and coriaceous, dull green above, reddish brown below, producing a non-ciliate fracture when broken perpendicular to the midvein; petioles 3–6 × 2–3 mm; lamina obovate, (5–)8–12.5 × (2.2–)3.8–6.2 cm, base acute to cuneate, apex obtuse, mucronate or occasionally retuse through the loss of the mucron with 50 to 68 small- to medium-sized hypophyllous glands per lamina in 2 ± uniform rows located 1–11 mm from the margin; midvein obscure or impressed above, prominulous below, lateral veins obscure on both surfaces or prominulous below. Inflorescence a dense, multiflorous, broom-like raceme, axis 10–17.2 cm long, with 18 to 42 flowers borne on slender, tapered pedicels 3.5–5.5 cm long, 2–3 mm wide basally, thickening to 4–5 mm apically, attached to rachis at angles of 45°–85°; foliaceous bracts ovate, 1.4–2.1 × 0.9–1.2 cm, each with 3 pairs of hypophyllous glands; nectariferous bracts leathery and somewhat succulent, greenish red, cyathiform, 0.6–1 × 0.6–0.8 cm on attenuate stalks

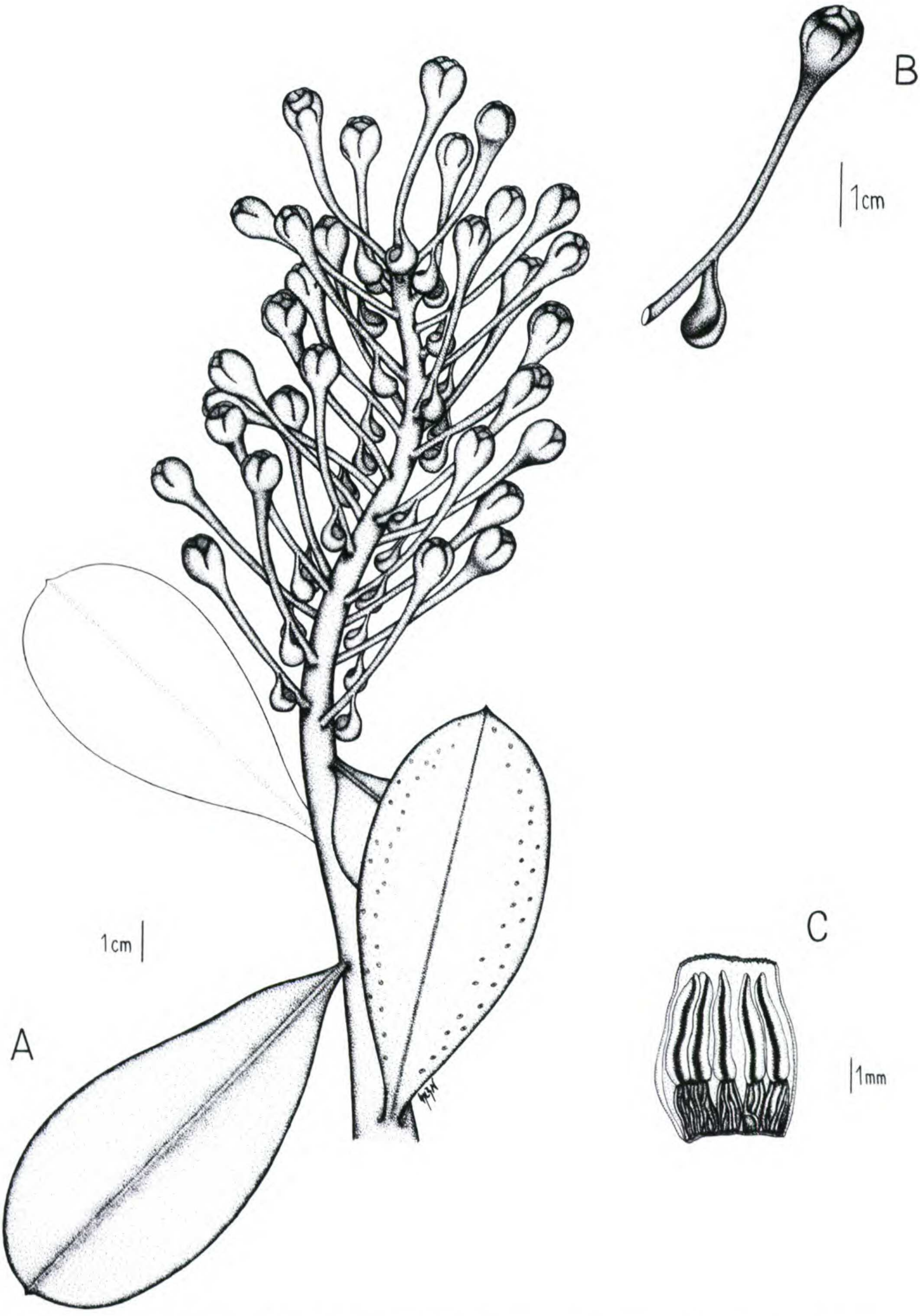

Figure 1. *Schwartzia pterosara* de Roon & Bedell ex Giraldo-Cañas. —A. Floriferous branch. —B. Bud and nectariferous bract. —C. Part of corolla with attached immature stamens (from *Croat 50284*, holotype, MO).

3–4 mm long, attached 0.8–1.6 cm from the base of pedicels. Flowers pale green with red at maturity; buds 0.6–0.9 cm long; bracteoles elliptic to obovate with membranaceous margins, (4–)8–11 × (4–)7–9 mm, tightly appressed to the calyx; sepals orbicular with membranaceous margins, (4–)5–7 mm long and wide; petals free, elliptic to oblanceolate, 8–11 × 3–5 mm; stamens 12, 6–8 mm long; filaments free, flattened and broader apically, adnate basally to the corolla; anthers subsaggitate, pollen bright yellow; ovary pyriform or turbinate, 4–5 mm tall, 5-locular; style cylindrical, 1 mm tall; stigma smooth, mammiform. Fruit 0.9–1.1 × 0.8–1 cm, globose, apiculate, green or brown; seeds reniform to elliptic, reticulate, shiny, numerous, 1.2–1.5 × ca. 0.7 mm.

Distribution and habitat. *Schwartzia pterosara* is known only from wet Andean forests at 2000 m in the vicinity of Baeza (Napo, Ecuador). However, there may be more specimens at other herbaria from Ecuador (e.g., QCA, QCNE, GUAY), but unfortunately I do not have access to their collections. It is hoped that increased collecting activity will yield additional specimens of this species.

Bedell (1985) cited another collection from Colombia [*Cuatrecasas 23618* (F, US)], but I have not seen it, despite the Curators of F and US sending me all their Marcgraviaceae collections (with the exception of vouchers belonging to *Marcgravia*) deposited in these herbaria. Stefan Dressler (FR, pers. comm.) said there is one specimen from Peru at FR and MO (*Campos & Núñez 4612*), but I have not seen this collection either. If these collections belong to *S. pterosara*, the distribution of the species is broader than stated above.

Phenology. Flowering September to October; fruiting June to July.

Etymology. The epithet *pterosara* is composed by the Greek words *pteron*, feather, and *saron*, broom, referring to the feathery, broom-like appearance of the inflorescence.

Schwartzia pterosara differs from the other species of the genus by its large number of hypophyllous glands, its dense, multiflorous raceme, tapered pedicels, and the size and shape of the nectaries. With these new species, four *Schwartzia* species are presently recognized for Ecuador (*S. chocoensis* Giraldo-Cañas, *S. diaz-piedrahitae*, *S. lozaniana* Giraldo-Cañas, and *S. pterosara*).

Paratype. ECUADOR. **Napo:** vic. Baeza, 2000 m, *L. Besse, H. Kennedy & R. Baker 1504* (MO).

A Synopsis of the Genus *Schwartzia* in Ecuador

Schwartzia Vellozo, Fl. Flumin. 5: 221. 1825 [1829]. TYPE: *Schwartzia glabra* Vell. [= *Schwartzia brasiliensis* (Choisy) Bedell ex Giraldo-Cañas].

Sprawling terrestrial or epi- to hemiepiphytic shrubs. Leaves spiraled, subsessile or petiolate, blades glabrous, oblong, elliptic, or obovate, occasionally asymmetrical, venation brochidodromous, obscure or impressed above, obscure to prominent beneath, coriaceous, with hypophyllous glands. Inflorescence racemose, terminal, rarely lateral, multiflorous or occasionally pauciflorous; flowers pentamerous, borne on elongate pedicels, subtended by the stalked sacciform, tubular, cymbiform, cyathiform, or helmet-shaped nectaries that are attached at or below the middle of the pedicel, or only rarely at the base of the pedicel (e.g., *S. diaz-piedrahitae*); sepals 5, imbricate in 2 whorls; petals 5, free or basally connate, reflexed at anthesis; stamens 10 to numerous, rarely 5, in 1 or several whorls; filaments linear to broad and somewhat flattened, free or basally connate and occasionally adnate to base of petals; anthers basifixed to subbasifixed, subcordate or subsagittate; ovary conical, pyriform, or turbinate, completely or incompletely 3- to 5-locular; stigma mammiform, subsessile, lobed or radiate. Fruit capsular, globose to subglobose, apiculate with persistent style and stigma, loculicidally and septifragously dehiscent from the base; seeds hemispherical or reniform, reticulate, few to numerous, and with a shiny black testa.

Vellozo (1825) described the genus *Schwartzia* based on a single species, *S. glabra*, a small tree of the coastal forests of Brazil characterized by having slightly evaginated nectariferous bracts inserted at or near the middle of the pedicel. This tree proved to be the previously described *Norantea brasiliensis* Choisy (1824). *Schwartzia* was soon placed in synonymy, and its species referred to *N. brasiliensis* [= *S. brasiliensis* (Choisy) Bedell ex Giraldo-Cañas]. Delpino (1869), however, noted the distinctive bract position and proposed a monotypic subgenus, *Norantea* subg. *Cochliophyllum*, for *N. brasiliensis*. More recently, the genus *Schwartzia* was revived by Bedell (1989) and recognized by de Roon and Dressler (1997) when they accepted the segregation of the Norantea complex in four genera (*Marcgraviastrum*, *Norantea*, *Sarcopera*, and *Schwartzia*).

KEY TO THE ECUADOREAN SPECIES OF *SCHWARTZIA*

1a. Nectariferous bracts cyathiform, 0.6–1 cm long; 50 to 68 hypophyllous glands per lamina; bracteoles (4–)8–11 mm long; sepals (4–)5–7 mm long; petals 8–11 mm long . . . . . *S. pterosara*
1b. Nectariferous bracts saccate, tubularifom to globose, 0.9–3.3 cm long; 0 to 14 hypophyllous glands per lamina; bracteoles 1.8–5 mm long; sepals 2–7 mm long; petals 5–13 mm long.
2a. Nectariferous bracts attached at the base of the pedicel; stamens 14 . . . *S. diaz-piedrahitae*
2b. Nectariferous bracts attached 1–1.6 cm from the base of the pedicel; stamens 22 to 50.
3a. Stamens 22 to 26; bracteoles ca. 2 mm long; sepals 2.2–2.8 mm long; ovary ca. 2.5 mm long; ovary 4-locular; urn of the nectariferous bracts 0.9–1.7 cm long . . . . . *S. lozaniana*
3b. Stamens 50; bracteoles 2.5–5 mm long; sepals 4–7 mm long; ovary 3–8 mm long; ovary 5-locular; urn of the nectariferous bracts 1.5–3.3 cm long . . . . . *S. chocoensis*

1. Schwartzia chocoensis Giraldo-Cañas, Revista Acad. Colomb. Ci. Exact. 25: 478. 2001. TYPE: Colombia. Chocó: carr. Ansermanuevo–San José del Palmar, 8.4 km del Alto del Galápago, 1600 m, 19 Feb. 1977, *E. Forero, A. Gentry, A. Sugden & D. Daly 3000* (holotype, COL; isotypes, CHOCO, MO).

Description and illustration: Bedell (1985: 202–206, as "Schwartzia foreroi" de Roon & Bedell, *nomen nudum*); Giraldo-Cañas (2003: 10–12).

Schwartzia chocoensis is easily recognized by its large flowers on long and thick pedicels, with succulent, saccate or tubularifom nectaries, and by its long leaves. This species was known only from the Chocó region of Colombia (Bedell, 1985: 203–206; Giraldo-Cañas, 2003: 12). Recent studies of the Norantea complex have revealed its occurrence in one locality in Pichincha Province, Ecuador. The study of specimens from Colombia and Ecuador leaves no doubt about their identity. *Schwartzia chocoensis* occurs as a sprawling shrub in different types of wet forests below 1600 m. "Schwartzia foreroi" de Roon & Bedell is a *nomen nudum* that appears in Bedell (1985: 202) and in Forero and Gentry (1989: 103); it is synonymous of *S. chocoensis.*

Additional specimens examined. ECUADOR. **Pichincha:** km 110 Quito-Nono-Tandayapa-Mindo-Puerto Quito, *C. Dodson & A. Embree 13091* (MO).

2. Schwartzia diaz-piedrahitae Giraldo-Cañas, Revista Acad. Colomb. Ci. Exact. 25: 480. 2001. TYPE: Colombia. Valle del Cauca: Bajo Calima, Concesión Pulpapel/Buenaventura, 3°55′N–77°W, 100 m, 17 Oct. 1984, *M. Monsalve 484* (holotype, COL; isotypes, JAUM, MO, NY).

Description and illustration: Bedell (1985: 168–172, as "Schwartzia colombiana" de Roon & Bedell, *nomen nudum*); Giraldo-Cañas (2003: 12–14).

This species is unusual by having its nectariferous bracts attached at the base of the pedicel, a feature unique within the genus *Schwartzia. Schwartzia diaz-piedrahitae* was known only from the Chocó region in Colombia (Bedell, 1985: 169–170; Giraldo-Cañas, 2003: 13). However, recent studies of Colombian and Ecuadorean specimens have confirmed its presence at one locality in the province of Carchi, Ecuador. This species is a common and sometimes abundant element of wet lowland forests at 0–450 m. "Schwartzia colombiana" de Roon & Bedell is a *nomen nudum* that appears in Bedell (1985: 168) and in Forero and Gentry (1989: 103); it is synonymous with *S. diaz-piedrahitae.*

Additional specimens examined. ECUADOR. **Carchi:** trail along plain above Tobar-Donoso & Río Guape, *W. Hoover 1254* (MO).

3. Schwartzia lozaniana Giraldo-Cañas, Caldasia 23: 384. 2001. TYPE: Colombia. Nariño: Junín–Tumaco rd., 6–11 km W of Junín, roadside thickets & forest edge, 850–1030 m, 27 Feb. 1979, *J. Luteyn & M. Lebrón-Luteyn 6880* (holotype, COL; isotypes, MO, NY, U not seen).

Description and illustration: Bedell (1985: 198–201, as "Schwartzia venusta" de Roon & Bedell, *nomen nudum*); Giraldo-Cañas (2003: 15–17).

Schwartzia lozaniana is easily recognized by its flowers borne on long and slender pedicels, its saccate nectaries, and its elliptic-obovate to oblong leaves with acuminate to attenuate apices. This species has been recorded in Nariño (southern Colombia) and Esmeraldas (Ecuador) (Giraldo-Cañas, 2001b, 2003) and now, too, in the province of Carchi (Ecuador). *Schwartzia lozaniana* is uncommon in Colombia and Ecuador, and its occurrence is limited to some wet montane forests at 400–1600 m.

Additional specimens examined. ECUADOR. **Carchi:** trail to Río Gualpi Chico, along ridge line near Awa encampment, *W. Hoover et al. 2538* (MO); border area betw. Carchi & Esmeraldas, ca. 20 km past Lita on rd. Lita–Alto Tambo, *H. van der Werff et al. 11992* (MO). **Esmeraldas:** Quinindé Cantón, Bilsa Biol. Stat., Res. Ecol. Mache-Chindul, 40 km NW of Quinindé, Loma de los Guerrilleros, *J. Clark et al. 3974* (COL); Lita–San Lorenzo rd., 18 km W of Río Lita Bridge, on old rd. below Lita, 6.6 km W of bridge over Río Chuchubí, *T. Croat et al.*

82631 (MO); Lita–San Lorenzo rd., 10–20 km NW of Lita, *A. Gentry et al. 70088* (MO).

4. Schwartzia pterosara de Roon & Bedell ex Giraldo-Cañas.

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Vellozo, J. M. de C. 1825. *Schwartzia. In:* Florae Fluminensis 5: 221–222. F. J. Marianus Ed., Rio de Janeiro.

Belamcanda Included in *Iris*, and the New Combination *I. domestica* (Iridaceae: Irideae)

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ABSTRACT. The eastern Asian genus *Belamcanda* (Iridaceae: Irideae), with its sole species, *B. chinensis*, the leopard or blackberry lily, has long been understood to be most closely related to *Iris dichotoma* (syn. *Pardanthopsis dichotoma*), but has nevertheless been maintained as a separate genus because of its distinctive floral, fruit, and seed morphology. Molecular DNA sequence evidence shows *B. chinensis* and its sister species, *I. dichotoma*, to be nested within the large Northern Hemisphere genus *Iris* (ca. 280 spp.). Not only does consistent taxonomic treatment of genera of the Iridaceae require that *Belamcanda* be transferred to *Iris*, but we argue that taxonomy should follow the principle of monophyly, which requires that *Belamcanda* and any other genus nested in *Iris* be treated as members of that genus. A new combination, *I. domestica* (basionym *Epidendrum domesticum*), is made for *B. chinensis* (based on *Ixia chinensis*), because the name *Iris chinensis* is preoccupied. The names *Belamcanda pampaninii* Léveillé and *B. chinensis* var. *taiwanensis* S. S. Ying are here included in the synonymy of *I. domestica*.

Key words: *Belamcanda*, Iridaceae, Iridoideae, *Iris*, paraphyly, phylogeny.

The genus *Belamcanda* Adanson, now usually regarded as comprising a single species, *B. chinensis* (L.) DC., the leopard or blackberry lily (Mathew, 1981), is a member of the predominantly Old World tribe Irideae of subfamily Iridoideae of the Iridaceae (Goldblatt, 1990). The tribe includes the Northern Hemisphere genus *Iris* L. (ca. 280 spp.) of Eurasia, North America, and North Africa, the largely sub-Saharan African *Moraea* Miller (ca. 196 spp.), the southern African *Bobartia* L. (15 spp.), *Dietes* Salisbury ex Klatt (6 spp.), which is largely sub-Saharan African but has one species on Lord Howe Island in the southern Pacific region, and the tropical and southern African *Ferraria* Burman ex Miller (ca. 12 spp.). Other small, formerly recognized, largely African genera, including *Barnardiella* Goldblatt (1 sp.), *Galaxia* Thunberg (15 spp.), *Gynandriris* Parlatore (9 spp.), *Hexaglottis* Ventenat (6 spp.), and *Homeria* Ventenat (32 sp.), found to be nested in *Moraea*, have been reduced, rendering *Moraea* monophyletic (Goldblatt, 1998; Goldblatt et al., 2002).

In contrast, the small genera clearly allied to, and evidently nested in, *Iris*, including *Belamcanda*, *Hermodactylus* Miller (1 sp.), and *Pardanthopsis* (Hance) L. W. Lenz (1 sp.), are usually recognized in floristic accounts. Thus *Iris*, according to current circumscriptions, is paraphyletic. The belief that these genera are most closely related to particular species or species groups within *Iris* has now been confirmed by molecular study using chloroplast DNA regions (Tillie et al., 2001). A consistent treatment of genera of the Iridaceae requires that the names of these genera be treated as synonyms of *Iris*, and, we argue, a taxonomy that follows the phylogenetic principle of taxonomic monophyly demands such treatment. That *Belamcanda chinensis* is nested in *Iris* is not only amply demonstrated by molecular analysis using two chloroplast DNA sequences (Tillie et al., 2001), but it is also the most parsimonious interpretation of evidence from more classical characters. Its basic morphology closely resembles that of *Iris* (*Pardanthopsis*) *dichotoma* Pallas in its aerial, suberect rhizome that is in effect a stem, the more or less dichotomously branched inflorescence, and short subequal dark green spathes enclosing the flowers of each inflorescence unit (a rhipidium) (Mathew, 1981). Both species have indeed been referred to the genus *Pardanthus* Ker Gawler. In addition, both species are fully deciduous, unlike most other, though by no means all, *Iris* species. These two species share the same, apparently derived, chro-

mosome number, $2n = 32$, and karyotype, and, despite their apparently grossly different flowers, can readily be crossed. Neither species can be crossed with any other species of *Iris* tested (Simonet, 1934). Morphological similarity combined with the biosystematic data led Lenz (1972) to segregate *I. dichotoma* as the monotypic genus *Pardanthopsis*, named for its similarity to *Pardanthus*, a nomenclatural synonym of *Belamcanda* (Ker Gawler, 1804). The "intergeneric" hybrids between *Belamcanda* and *Pardanthopsis* have been named ×*Pardacanda* Lenz, for obvious reasons.

The segregation of *Pardanthopsis* from *Iris* overlooks its similarities to some species of *Iris*, including *I. japonica* Thunberg and other far eastern *Iris* species that have an aerial rhizome. Tillie et al.'s (2001) molecular analysis places *I.* (*Pardanthopsis*) *dichotoma* sister to *Belamcanda chinensis* with strong bootstrap support (BS 98%), but there is only moderate support for the nesting of these two species within a well-supported clade that comprises subgenus *Iris*, a western Asian and European assemblage. Nevertheless, both *Belamcanda* and *Pardanthopsis* are deeply nested in *Iris*, and we see no reasonable alternative to including both in that genus.

While the single species each of *Hermodactylus* and *Pardanthopsis* were originally, and are occasionally still, included in *Iris*, as *I. tuberosa* L. and *I. dichotoma*, respectively, *Belamcanda* has never been so treated. Thus there is no available combination in *Iris* for *B. chinensis*. We remedy this here, and formally place *Belamcanda* in the synonymy of *Iris*. According to Garay (1997), the earliest specific epithet available for transfer to *Iris* is provided by *Epidendrum domesticum* L., and the new combination *Iris domestica* is therefore provided here. The specific epithet from *Belamcanda chinensis*, based on *Ixia chinensis* L., cannot be transferred to *Iris* because of the name *I. chinensis* Curtis, a synonym of *I. japonica* Thunberg, another eastern Asian species.

Systematics

Iris L., Sp. Pl. 38. 1753. TYPE: *Iris* ×*germanica* L. (pro sp.).

Belamcanda Adanson, Fam. Pl. 2: 60 (as "*Belam-Canda*") & 524 (as "*Belamkanda*"). 1763, nom. et orth. cons. Syn. nov. TYPE: *Belamcanda chinensis* (L.) DC., typ. cons.

Pardanthus Ker Gawler, Koenig & Sims Ann. Bot. 1: 246. 1804, nom. illegit. superfl. pro *Belamcanda*. TYPE: *Pardanthus chinensis* (L.) Ker Gawler.

Iris domestica (L.) Goldblatt & Mabberley, comb. nov. Basionym: *Epidendrum domesticum* L., Sp. Pl. 2: 952. 1753. *Vanilla domestica* (L.) Druce, Bot. Exch. Club Soc. Brit. Isles 3: 425. 1913. TYPE: Kaempfer, Amoen. Exot. Fasc. 5: t. 869, fig. 1 [Angurèk Warnà]. 1712, based on material given to Kaempfer by "Nic. Moellerus" in Jakarta ["Batavia"], Java, Indonesia (icon, lectotype, designated by Garay (1997)). EPITYPE: [Europe, cultivated,] *E. Davall* in Herb. J. E. Smith 89.42 (bequeathed to Smith in 1798)–LINN-SM 45, fiche seen, designated here).

Ixia chinensis L., Sp. Pl. 36. 1753. *Belamcanda punctata* Moench, Methodus 529. 1794, nom illegit. superfl. pro *Ixia chinensis* L. *Moraea chinensis* (L.) Thunberg, Fl. Jap. 34 1784. *Belamcanda chinensis* (L.) DC., in Redouté, Liliac. 3: ad t. 121. 1805. *Pardanthus chinensis* (L.) Ker Gawler, Koenig & Sims Ann. Bot. 1: 247. 1804, nom. illegit. superfl. pro *Belamcanda chinensis* [*Pardanthus sinensis* Van Houtte, Fl. Serres Jard. Eur. 26: t. 1632. 1865–67. orthog. var.]. *Gemmingia chinensis* (L.) Kuntze, Revis. Gen. Pl. 2: 701. 1891. comb. illeg., gen. inval. TYPE [icon]: Rheede, Hort. Malab. 11: t. 37. 1692 (lectotype, designated here).

Belamcanda pampaninii Léveillé, Repert. Spec. Nov. Regni Veg. 8: 59. 1910. TYPE: China. Guizhou: Shuiyang Xian, Wangcaoba [28°12′N, 107°26′E] or Wang-ts'ao-pa [28°08′N, ca. 107°12′E] (as Kouy-Tcheou, Choui-mi-tsin, Hoang-Tsao-Pa), flowers yellow, June 1909, *Esquirol 1565* (holotype, E).

Belamcanda chinensis var. *taiwanensis* S. S. Ying, Col. Illustrated Plants of Taiwan 1: 237. 1980. TYPE: Taiwan Keelung, Hopingtao, Aug. 1979, *S. S. Ying s.n.* (HAST not seen).

The type of *Epidendrum domesticum* is a somewhat stylized illustration in Kaempfer (1712), whose description is apparently based on two completely different plants (Garay, 1997), one an orchid, probably a *Cymbidium* species, and *Belamcanda chinensis*. In Kaempfer's account of Japanese plants it is one of the plants collected in 17th century Java by one "Nic. Moellerus," though, remarkably, unmentioned in the compendium of van Steenis-Kruseman (1950), and given to Kaempfer who was on the island in 1689–1690 and 1692–1693. It was then included in Linnaeus's *Species Plantarum*, where it received its first acceptable name. The plant was described by Kaempfer as a scandent parasite with variegated six-petaled flowers. The illustration, however, shows no indication of a climbing habit: only the upper portion of a branched flowering stem is drawn, with stalked multi-flowered inflorescences rather crudely shown. The flowers have six mottled tepals, five of them subequal and one irregularly twisted into what

could be mistaken for an orchid labellum. Stamens and details of the style are not shown. Although no confirmatory ("typotype") specimen could be found by DJM in Kaempfer's collection in the Sloane Herbarium (BM; cf. also Hinz, 2001), we agree with Garay that the illustration is a flowering stalk of *Belamcanda* with the individual rhipidia bearing two flowers raised above the characteristically short spathes. In interpreting the mixed illustration thus, Garay was able to avoid upsetting orchid nomenclature and, at the time when *Belamcanda* was considered distinct from *Iris*, this action had no effect on the iridaceous element. Here we provide an epitype as (ICBN Art. 9.7; Greuter et al., 2000) an "interpretative type [as] the lectotype . . . associated with a validly published name, is demonstrably ambiguous." We have chosen an early cultivated collection from Europe, as we have been unable to find a suitable early sheet from Java where Moellerus gathered his material for Kaempfer.

The genus *Belamcanda* was named in 1763 by Adanson, who did not transfer *Ixia chinensis*, the single species that he cited, to the genus. That action was left to De Candolle who provided the combination in 1805. That same year John Ker Gawler assigned *I. chinensis* to his new genus *Pardanthus*, evidently unaware that this name was a later synonym of *Belamcanda*. *Gemmingia*, a genus listed in indices of plant names as another synonym of *Belamcanda*, is as far as we can determine invalid, lacking a description. The name was used by Fabricius (1763), who attributed the name to Heister, but we have not yet been able to find mention of the genus in Heister's publications. Because it is evidently invalid, we have not listed *Gemmingia* in the synonymy above. Two species were listed by Fabricius as referable to *Gemmingia*, both listed as polynomials in the genus *Ixia*. Currently these are *Iris domestica* and *Aristea africana* (L.) Hoffmansegg, the basionym of which is *Ixia africana* (Linnaeus, 1753). Kuntze (1891) provided the combination *G. chinensis*, which is illegitmate because *Gemmingia* is invalid. Of the works containing illustrations of the plant cited in the protologue of *Ixia chinensis* we choose the illustration in Rheede's *Hortus Malabaricus* as the lectotype, as best representing the species. The specimen of the species in the Linnaean Herbarium is not available as a lectotype because it was added to the collection after Linneaus's death.

Indexes of plant names list *Iris tripedalis* Fischer ex Roemer & Schultes as a synonym of *Belamcanda chinensis*, but it is an invalid authorless name, mentioned in discussion only, in the *Mantissa* to volume 1 of Roemer & Schultes's *Systema vegetabilium* under the account of *I. dichotoma* (Roemer & Schultes, 1822: 306). The unlisted name *Pardanthus tricolor* Arruda ex Almeida (1873: 273) was based on material grown in Brazil but no type is known, making its identity uncertain, although this plant is very likely *I. domestica*. We are indebted to Joseph Kirkbride for drawing our attention to this name. We assume that *Belamcanda flabellata*, described by C. H. Grey in 1934 for yellow-flowered plants believed to have come from Japan, is a color variant of *Iris domestica*, but we have been unable to locate type material and do not include this name in synonymy. The yellow-flowered variety *B. chinensis* var. *taiwanensis* was included in *B. chinensis* by Zhao et al. (2000), a treatment we endorse. Although we have not seen the type, C.-I. Peng (pers. comm.) considers it a trivial variant of *I. domestica* (*B. chinensis*) with slightly smaller flowers than variety *chinensis*, which is also native in Taiwan. At least one other heterotypic synonym is known for the species. *Belamcanda pampaninii* (Léveillé, 1910; McKean, 1986), described by Hector Léveillé, is based on (apparently) wild-collected plants from China, also with predominantly yellow flowers.

All other names in *Belamcanda* and *Pardanthus* (Moench, 1794) found in standard indexes of plant names are combinations in those genera for South African species now included in *Sparaxis* Ker Gawler or *Tritonia* Ker Gawler. *Pardanthus dichotomus* (Pallas) Ledebour is *I. dichotoma*, while *P. nepalensis* Sweet, a name without description, may be *B. chinensis*.

Iris domestica is believed to be native to eastern China, Japan, Korea, Taiwan, and the Ussuri region of Russia (Mathew, 1981), but the plant has been in cultivation for so long a time, persists where planted, and spreads so readily from gardens, that its original distribution remains somewhat uncertain. It is treated in the *Flora of China* as native there, and is listed as also occurring in Japan, Korea, Myanmar, Vietnam, India, the Philippines, and Russia, but the authors did not differentiate its native from introduced localities (Zhao et al., 2000) and noted that the plant is "usually cultivated." Indeed, the name *Belamcanda* is perhaps a corruption of a southwest Indian vernacular name (Nicolson et al., 1988: 294).

The distinctive features of *Iris domestica* are the subequal, spreading tepals, weakly differentiated into limb and claw (unlike other *Iris* species), and the bizarre tepal coloration, a light pink to orange base with speckles of orange to scarlet pigmentation (Fig. 1). Even more singular are the free tepals, while the style base is not embedded in hypanthi-

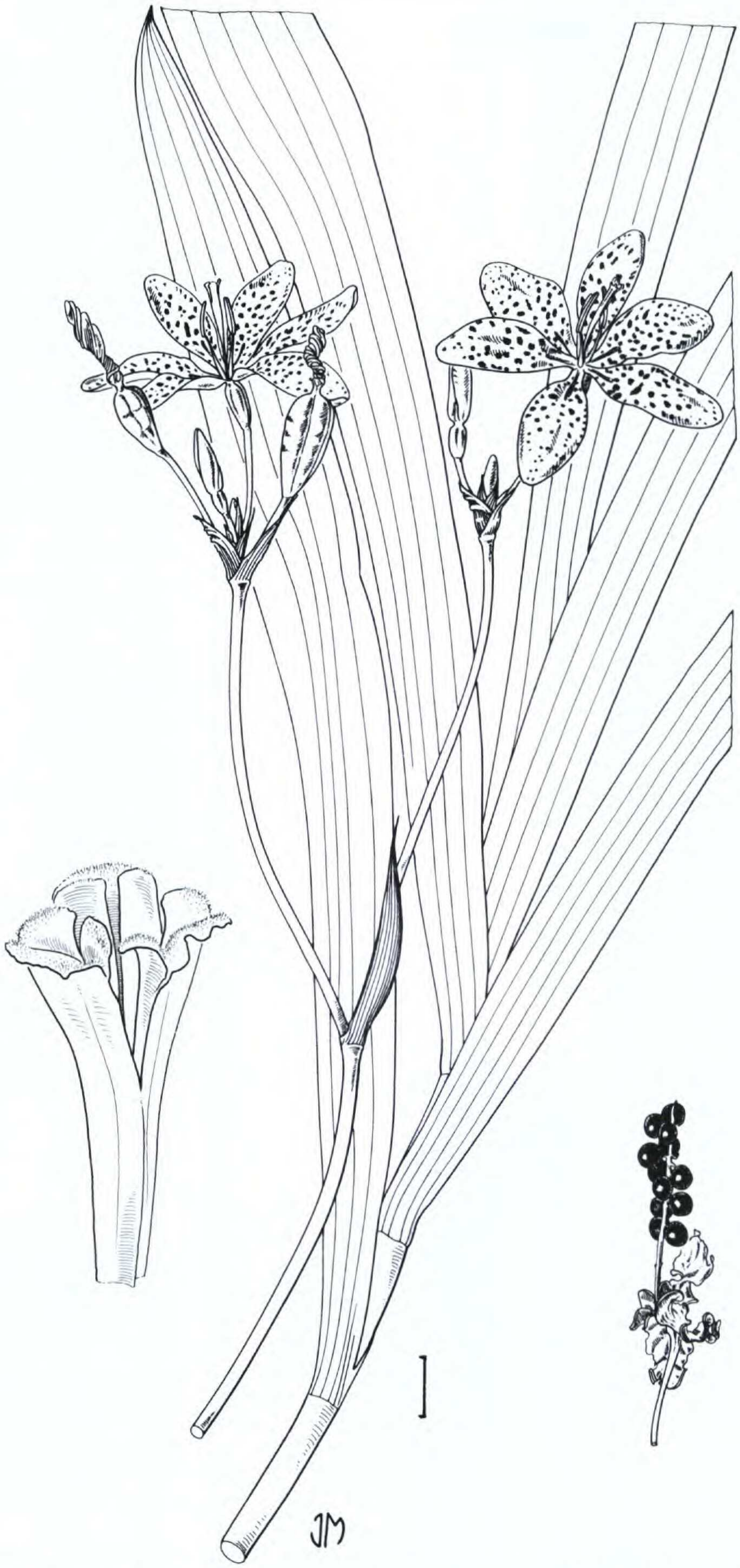

Figure 1. *Iris domestica*, flowering branch, stem base with leaves, ripe capsule, and detail of the style and style branches, each with abaxial stigma lobes and short, suberect vestigial paired crests; style branch details much enlarged. Scale bar 1 cm. Drawn by John Manning from plants cultivated at the Missouri Botanical Garden.

um tissue and the style is divided into narrow, almost filiform branches, the latter seemingly quite different from the broad, tangentially flattened, usually petal-like style branches of *Iris* that terminate in paired petal-like crests. Examination (with a 10× hand lens), however, shows that the style branches are *Iris*-like in miniature (Fig. 1). The stigma is a small abaxial lobe below the apex of each style branch, while two small flaps of sterile tissue form crest-like appendages at the adaxial apices of the style branch. This structure seems best interpreted as homologous with the more prominent style branches of other *Iris* species. The apparent reduction of the *Iris*-like style branches in *I. domestica* is paralleled in several species of the related African genus *Moraea*, notably species in section *Homeria* (Goldblatt, 1986, 1998). In *Moraea* the reduction of the style branches is associated with a shift in pollination system (Goldblatt & Bernhardt, 1999). A shift in pollination system therefore seems likely in *I. domestica*.

Iris domestica also differs from other *Iris* species in its globose, smooth, shiny back seeds (Fig. 1), evidently an apomorphic character state. The seeds are quite different from those of other *Iris* species, including *I. dichotoma*, and leave us marveling at their unusual structure, which we suggest is an adaptation to avian dispersal, for the seeds collectively remain attached to the axile placentas after the capsule walls have dried and curved outward, the infructescence thereby resembling a blackberry. This is reflected in one of its common names, blackberry lily, a name used in North America where it is widely naturalized (Goldblatt, 2002).

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A New *Anthurium* sect. *Pachyneurium* (Araceae) from Minas Gerais State, Brazil

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ABSTRACT. A new species, *Anthurium leonii* E. G. Gonçalves from Minas Gerais State in southeastern Brazil, is described, illustrated, and compared with *A. solitarium* Schott, the most similar species. *Anthurium leonii* belongs to section *Pachyneurium* Schott series *Pachyneurium* (Schott) Croat and seems to occur only above 1100 m elevation in the Caparaó National Park. This new species is so far known from the type locality and surrounding areas.

RESUMO. Uma nova espécie de *Anthurium* (*A. leonii* E. G. Gonçalves), proveniente do estado de Minas Gerais, sudeste do Brasil, é descrita, ilustrada e comparada com *A. solitarium* Schott, a espécie mais similar. *Anthurium leonii* pertence à seção *Pachyneurium* Schott, série *Pachyneurium* (Schott) Croat e parece apenas ocorrer em altitudes acima de 1100 m, no Parque Nacional do Caparaó. Até onde se conhece, esta espécie é apenas conhecida para a localidade típica e áreas vizinhas.

Key words: *Anthurium*, Araceae, Brazil, section *Pachyneurium*.

The genus *Anthurium* Schott, comprising approximately 1000 species (Croat, 1999), is exclusively Neotropical and is the largest genus in the family Araceae. Section *Pachyneurium* is the only section completely revised in recent times (Croat, 1991), with at least 115 species, including *A. xanthophylloides* G. M. Barroso, added after the publication of the revision (Gonçalves & Salviani, 2001). The diagnostic feature for this section is the presence of involute vernation, which is supervolute in the other sections (Croat, 1991). The species of section *Pachyneurium* are usually large herbs with short internodes.

During my first visit to the herbarium Guido Pabst (GJFP) in October 2000, I made note of a specimen of *Anthurium* from Caparaó National Park, originally identified as *A. solitarium* Schott. Its observed morphology consistently varied from the typical *A. solitarium* that usually occurs in the eastern Brazilian states of Minas Gerais, Espírito Santo, and Rio de Janeiro. Later, I observed living plants of this species in the field and have concluded it is a new species, here described. Descriptive terminology follows Croat and Bunting (1979), and the term metaphyll for the second cataphyll follows Grayum (1986).

Anthurium leonii E. G. Gonçalves, sp. nov. TYPE: Brazil. [Minas Gerais:] Alto Caparaó, Parque Nacional do Caparaó, 1300 m, 26 Oct. 1996, *L. S. Leoni 3500* (holotype, GFJP; isotype, UB). Figure 1.

Ad sectionem *Pachyneurium* seriem *Pachyneurium* pertinens. Planta epilithica; internodia brevia, 4–7 cm diam.; prophyllum trigonum, 2-carinatum; metaphyllum lanceolatum non carinatum; petiolus 6–13 cm longus, 0.7–1.5 mm diam., U-formatus, adaxiale sulcatus, marginibus rotundatis; lamina coriacea, obovata, 46–58 cm longa, 21.5–32 cm lata, nervis primariis lateralibus 10–15 utroque, arcuatis; pedunculus 30–46 cm longus, 0.5–0.7 cm diam.; spatha lanceolata vel ovato-lanceolata, 11–17 cm longa, 1.8–2.5 cm lata, marginibus ad basem obtusis sed abrupte acute decurrentibus; spadix castaneus, 9.5–25 cm longus, inferne 7–11 mm diam., sursum attenuatus.

Epilithic; stem with internodes short, 4–7 cm diam.; roots numerous, dense, green, smooth; cataphylls dimorphic, prophyll elongate-triangular, 6–9 cm long, clearly 2-keeled, metaphyll lanceolate, 12–16 cm long, non-keeled, acute at apex, both persisting as long brown fibers. Leaves erect to spreading; petiole 6–13 cm long, 0.7–1.5 cm diam., U-shaped, narrowly sulcate with rounded margins adaxially, rounded abaxially, the surface dark green, pale-speckled; geniculum slightly thicker than the petiole, pale green, 0.5–1.5 cm long; sheath 5.2–9 cm long; blade coriaceous, 46–58 cm long, 21.5–32 cm wide, obovate, rounded at apex with a small mucron up to 2 mm long at apex, obtuse to rounded at base, broadest at the middle or slightly above, the margins very weakly undulate; upper surface matte, medium green, lower surface matte, slightly paler; both surfaces drying matte, yellowish green to yellow-brown; midrib slightly prominent above, obtusely raised below; primary lateral veins 10 to 15 per side, departing midrib at 40°–50° angle, arcuate, slightly raised in